

## **Rising of a sea-level as a consequence of climate change and its impact on endangered coastal habitats**

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Biodiversity is threatened by habitat degradation and destruction, but climate change already became an additional important driver, which is going to influence habitats and their quality in the next decades. In contrast to many other parameters, describing climatic changes in near future, rising of a sea-level is occurring already now and is very simple to predict. Therefore, due to climate change, many seacoast habitats, with vulnerable halophyte vegetation, will be flooded in near future in the Mediterranean. Together with anthropogenic threats to the seacoasts, sea-level rise will decrease the surfaces of endangered coastal habitats and change their species composition. Despite that halophyte vegetation on seacoast mudflats in the Northern Adriatic represents relatively simple systems, based on the presence of only a few highly specialized species, the risk of losing the Natura 2000 habitats, owing the fast changing environment, is therefore even greater. Habitat mapping of Slovenian seacoast habitats (Gulf of Trieste, Northern Adriatic) was performed and micro-elevations of each habitats were obtained. A high positive correlation between the micro-elevation levels (measured with LiDAR technology calibrated with geodetic high resolution GPS module) and the vegetation types (mapped according to PHYSIS habitat typology with a resolution of 2m<sup>2</sup>) were found (Cramer's V=0.46). In all scenarios there were a decrease of a habitat with *Salicornia* and other annuals (*Salsola soda*, *Sueda maritima*) colonizing mud and sand. The habitat with halophyte perennials (*Limonium vulgare*, *Sarcocornia fruticosa*, and *Atriplex* spp.) will start to establish at the sites with appropriate micro-altitude according to the modeled scenarios. In the worst-case scenario (sea level rise of 20 cm) the halophyte perennials are moving close to the dikes and forming a narrow zone where the elevation, soil moisture and salinity ratio represent appropriate growing conditions and the annuals almost disappear.